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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,042	07/08/2003	Hiroshi Osawa	Q71025	6702

23373 7590 09/09/2004
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/614,042

Applicant(s)

OSAWA, HIROSHI

Examiner

Holly Rickman

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,5,8,10 and 14-19 is/are rejected.
- 7) ☒ Claim(s) 2-4,6,7,9 and 11-13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. Applicant's submission of a verified English translation of the provision application 60/344,931 on 9/22/03 is acknowledged.

Claim Interpretation

2. Claims 3-13 have been interpreted to mean that the non-magnetic undercoat layer is formed from the specified alloy and has the specified composition. In other words, claim 3 requires that the layer A is formed from a Cr-Ta-based alloy and that alloy has the claimed Ta content.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites the limitation "layer C" in line 3. There is insufficient antecedent basis for this limitation in the claim. Claim 16 depends from claim 1 or claim 2. Only claim 2 includes layer C.

Claim Rejections - 35 USC § 102

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 15, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshida et al. (US 2003/0124389).

Yoshida et al. disclose a magnetic recording medium having a seedlayer or first intermediate layer formed from a Cr alloy such as CrTi, a second non-magnetic intermediate layer formed from CoCrMo, a magnetic layer thereon formed from CoCrTa, CoCrPt, or CoCrPtTa, for example, and a protective overcoat (see paragraphs 30, 31, 34, 35, and 36).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al. (US 2003/0124389).

Yoshida et al. teach all of the limitations of the claims as detailed above, except for the particular amount of Ti present in the CrTi undercoat.

The reference teaches that it is known to adjust the lattice spacings between the seedlayer and the first intermediate layer by adding an element such as Ti to the Cr base of the first intermediate layer (see paragraph 42). Thus, the amount of Ti added to the CrTi alloy layer is a result effective parameter that affects lattice matching between the seedlayer and the first intermediate layer. As such, it would have been obvious to optimize the amount of Ti added since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

9. Claims 1, 8, 10, 14-15, and 18-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 6759149) in view of Yoshida et al. (US 2003/0124389).

Chen et al. disclose a magnetic recording medium having a Cr alloy underlayer, a CoCrW or CoCrMo nonmagnetic underlayer, a Co alloy magnetic layer and a protective overcoat. The reference is silent with respect to the use of the specific Cr alloys claimed for use as a nonmagnetic underlayer. Instead, Chen et al. disclose the use of CrW or CrV underlayers.

Yoshida et al. teach the equivalence of CrV, CrW and CrTi underlayers for use under CoCr nonmagnetic intermediate layers.

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute a CrTi underlayer as taught by Yoshida et al. for the Cr alloy materials taught by Chen et al. in view of the art recognized equivalence of the alloys.

With respect to claims 8 and 10, Chen et al. teaches that the addition of W or Mo to CoCr alloys expands the lattice constant of CoCr thereby improving lattice matching between the CoCrW or CoCrMo layer and the overlying recording layer. As such, it would have been obvious to optimize the amount of W or Mo added to the CoCr alloy taught by Chen et al. since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

10. Claims 2-4, 6-7, 9, 11-13, and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The claims are allowable over the closest prior art to Yoshida et al. and Chen et al. as applied above. The references fail to teach or suggest the claimed combinations of layer A and B with an additional layer C formed from a Cr alloy thereon. Furthermore, the references are silent with respect to the use of CrTa, CrNb, CrZr, and CrHf alloys having the claimed compositions. The references also fail to teach or suggest the use of CoWB, CoMoB, CoWMoB and a method of making a magnetic recording medium wherein the surface of the claimed nonmagnetic Co alloy is oxidized.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Holly Rickman", with a stylized flourish at the end.

Holly Rickman
Primary Examiner
Art Unit 1773

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August 31, 2004